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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,087	04/07/2005	Kiyoaki Takiguchi	261189US6PCT	9110
22850 7590 11/04/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER PARK, EDWARD				
ART UNIT		PAPER NUMBER		
2624				
NOTIFICATION DATE		DELIVERY MODE		
11/04/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/512,087

**Applicant(s)**

TAKIGUCHI, KIYOAKI

**Examiner**

EDWARD PARK

**Art Unit**

2624

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 59-62, 64-68, 70-73 and 75-88 is/are pending in the application.
- 4a) Of the above claim(s) 75-87 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 59-62, 64-68, 70-73 and 88 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/31/10
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. This action is responsive to applicant's amendment and remarks received on 8/23/10. Claims 59-62, 64-68, 70-73, 75-88 are currently pending.

***Election/Restrictions***

2. Newly submitted claims 75-87 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The following is a requirement for restriction and election of a group consisting of combination/subcombination. The applicant is required to elect from the combination/subcombination.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 59-62, 64-68, 70-73, 88, drawn to a device that detects a biometric pattern through near-infrared light being shielded though a specific configuration of the light source and detecting unit, classified in class 382, subclass 115.
- II. Claims 75-87, drawn to a biometric pattern detecting device that generates a biometric pattern though detection of a near-infrared light by measuring a phase difference between two frequency components of the detected near-infrared light

so as to measure a magnitude of birefringence of the light, classified in class 382, subclass 100.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not require the particulars of biometric pattern detecting device that generates a biometric pattern through detection of a near-infrared light by measuring a phase difference between two frequency components of the detected near-infrared light so as to measure a magnitude of birefringence of the light. The subcombination has separate utility such as enhance the detection process by increasing the accuracy and performance through the measurement of the phase and frequency components of the near-infrared light.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 75-87 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Response to Arguments***

3. Applicant's arguments with respect to claim 59, 65, 71 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues that the prior art of record does not disclose the amended limitation (see pg. 9, last paragraph – pg. 12, first paragraph). This argument is considered moot since claims 59, 65, 71 are rejected under a new ground(s) of rejection necessitated by applicant's amendment and the rejections can be seen within this action.

Regarding claims 60-62, 64, 66-68, 70, 72-73, 88, applicant argues that the dependent claims are allowable due to the same reasons as stated within claims 59, 65, 71 (see pg. 12, second paragraph). This argument is not considered persuasive since claims 59, 65, 71 are rejected under a new ground(s) of rejection necessitated by applicant's amendment and the rejections can be seen within this action.

Regarding claims 75-87, applicant argues that the prior art of does not disclose the newly added claims (see pg. 12, third paragraph - pg. 13). This argument is not considered persuasive since claims 75-87 have been withdrawn due to the election by original presentation as seen above.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 59-62, 64-68, 70-73, 88** are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al (US 2002/0028004 A1) with Marchitto et al (US 6,889,075 B2), and further in view of Lafreniere (US 4,821,118).

Regarding **claims 59, 60, 88**, Miura teaches a biometric pattern detecting device comprising:  
a light source unit configured to emit a light to be reflected or scattered in a part of body (Miura: figure 5, numeral 2);  
and a detecting unit configured to detect an image of the light reflected or scattered in the part of body by the light source unit (Miura: figure 5, numeral 4) and generate a biometric pattern using the detected image (Miura: figure 9), wherein the light source unit is set in a horizontal direction or a horizontally slanted direction with respect to the part of body (Miura: figure 5, numeral 2) and the detecting unit is set in a vertical direction or a vertical slanted direction with respect to the part of body (Miura: figure 5, numeral 4), the near-. Miura does not disclose a near infra-red light; a shield which prevents the near-infrared light reflected or scattered in a shallow portion of the part of the body from reaching the detecting unit; and light source unit and the detecting unit are non-coaxial with one another; and detecting unit detects the image of the near infra-red light reflected or scattered in the body on the different position from the position of the light emitted by the light source unit; near-infrared light passes through a surface of the part of the body and is reflected or scattered by a dermal portion, and the shield prevents the near-infrared light reflected or scattered in an epidermal layer, as the near-infrared light passes through the surface of the part of the body, from reaching the detecting unit.

Marchitto, in the same field of endeavor, teaches a near infra-red light (see fig. 5, col. 6, lines 10-61; imaging information (FIG. 5) using a pulsed laser producing near infrared radiant energy); and light source unit and the detecting unit are non-coaxial with one another (see fig. 5, col. 6, lines 10-61); detecting unit detects the image of the near infra-red light reflected or scattered in the body on the different position from the position of the light emitted by the light source unit (see fig. 5, col. 6, lines 10-61); near-infrared light passes through a surface of the part of the body and is reflected or scattered by a dermal portion (see fig. 5, col. 6, lines 10-61).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura to utilize near infra-red, shield and a non-coaxial arrangement as suggested by Marchitto, to enhance optical imaging of an anatomical structure and enhancing vascular contrast for specific tissues of interest such as blood vessels, while providing non-invasive and relatively low cost imaging (see col. 3, lines 4-25, col. 1, lines 48-59).

Lafreniere, in the same field of endeavor, teaches a shield which prevents light reflected or scattered in a shallow portion of the part of the body from reaching the detecting unit (see fig. 1, 2, 5, col. 8, lines 15-45; camera 11 and platform 3 provides an optical bench for the camera and platform and the platform is the object plane for that optical system. Between that object plane and the camera lens 41 is a lamp 42 that illuminates the object plane and may be a high intensity neon tube formed in a ring that fits coaxially within cylindrical container 12 as shown. Between lamp 42 and lens 41 is a reflector 43 that directs light from the lamp to the object plane and also forms an aperture at its inner edge 44 in the optical system that blocks any light from the lamp from entering directly into the lens 41. Also, the inside face 3b of the platform 3 may be slightly frosted so that it does not directly reflect an image of the lamp 42 into the lens 41);

shield prevents the light reflected or scattered in an epidermal layer, as the light passes through the surface of the part of the body, from reaching the detecting unit (see fig. 1, 2, 5, col. 8, lines 15-45).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura with Marchitto to utilize a shield as suggested by Lafreniere, to increase quality and performance of the imaging process by ensuring that only the targeted objects are imaged by the sensor/camera instead of any other objects such as the light source or any other external/ambient light sources (see col. 8, lines 15-45).

Regarding **claim 61**, Miura teaches wherein the part of body is a finger or a hand (Miura: figure 5, numeral 20).

Regarding **claim 62**, Miura teaches wherein the biometric pattern is a pattern of blood vessels (Miura: paragraph [0033]).

Regarding **claim 64**, Miura teaches a guide unit set between the detecting unit and the part of body (Miura: figure 5, numeral 1).

Regarding **claim 65, 66**, Miura teaches a personal authentication device comprising:  
a light source unit configured to emit a light to be reflected or scattered in a part of body (Miura: figure 5, numeral 2);  
a detecting unit configured to detect an image of the light reflected or scattered in the part of body by the light source unit (Miura: figure 5, numeral 4) and for generating a biometric pattern using the detected image (Miura: figure 9);  
a storage unit configured to store a biometric pattern (Miura: paragraph [0008]); and



an authentication unit configured to perform an authentication process by comparing the biometric pattern generated by the detecting unit with the biometric pattern stored by the storage unit (Miura: figure 9), wherein the light source unit is set in a horizontal direction or a horizontally slanted direction with respect to the part of body (Miura: figure 5, numeral 2) and the detecting unit is set in a vertical direction or a vertical slanted direction with respect to the part of body (Miura: figure 5, numeral 4). Miura does not disclose a near infra-red light; a shield which prevents light scattered in a shallow portion of the body from reaching the detecting unit; and light source unit and the detecting unit are non-coaxial with one another; and detecting unit detects the image of the near infra-red light reflected or scattered in the body on the different position from the position of the light emitted by the light source unit.

Marchitto, in the same field of endeavor, teaches a near infra-red light (see fig. 5, col. 6, lines 10-61; imaging information (FIG. 5) using a pulsed laser producing near infrared radiant energy); and light source unit and the detecting unit are non-coaxial with one another (see fig. 5, col. 6, lines 10-61); detecting unit detects the image of the near infra-red light reflected or scattered in the body on the different position from the position of the light emitted by the light source unit (see fig. 5, col. 6, lines 10-61).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura to utilize near infra-red, shield and a non-coaxial arrangement as suggested by Marchitto, to enhance optical imaging of an anatomical structure and enhancing vascular contrast for specific tissues of interest such as blood vessels, while providing non-invasive and relatively low cost imaging (see col. 3, lines 4-25, col. 1, lines 48-59).

Lafreniere, in the same field of endeavor, teaches a shield which prevents light scattered in a shallow portion of the body from reaching the detecting unit (see fig. 1, 2, 5, col. 8, lines 15-45; camera 11 and platform 3 provides an optical bench for the camera and platform and the platform is the object plane for that optical system. Between that object plane and the camera lens 41 is a lamp 42 that illuminates the object plane and may be a high intensity neon tube formed in a ring that fits coaxially within cylindrical container 12 as shown. Between lamp 42 and lens 41 is a reflector 43 that directs light from the lamp to the object plane and also forms an aperture at its inner edge 44 in the optical system that blocks any light from the lamp from entering directly into the lens 41. Also, the inside face 3b of the platform 3 may be slightly frosted so that it does not directly reflect an image of the lamp 42 into the lens 41).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura with Marchitto to utilize a shield as suggested by Lafreniere, to increase quality and performance of the imaging process by ensuring that only the targeted objects are imaged by the sensor/camera instead of any other objects such as the light source or any other external/ambient light sources (see col. 8, lines 15-45).

Regarding **claim 67**, Miura teaches wherein the part of body is a finger or a hand (Miura: figure 5, numeral 20).

Regarding **claim 68**, Miura teaches wherein the biometric pattern is a pattern of blood vessels (Miura: paragraph [0033]).

Regarding **claim 70**, Miura teaches a guide unit set between the detecting unit and the part of body (Miura: figure 5, numeral 1).

Regarding **claim 71**, Miura teaches a method of performing personal authentication, comprising:

emitting from a light source a light to be reflected or scattered in a part of body (Miura: figure 5, numeral 2);

detecting with a detector an image of the light reflected or scattered in the part of body (Miura: figure 5, numeral 4);

generating a biometric pattern using the detected image (Miura: figure 9);

performing an authentication process by comparing the generated biometric pattern with a stored biometric pattern (Miura: figure 9),

wherein the emitted light is emitted from a horizontal direction or a horizontally slanted direction with respect to the part of body (Miura: figure 5, numeral 2) and the image of the light reflected is detected in a vertical direction or a vertical slanted direction with respect to the part of body (Miura: figure 5, numeral 4). Miura does not disclose a near infra-red light; preventing using a shield light scattered in a shallow portion of the body from reaching the detecting unit; and emitted light and the detected light are non-coaxial with one another.

Marchitto, in the same field of endeavor, teaches a near infra-red light (see fig. 5, col. 6, lines 10-61; imaging information (FIG. 5) using a pulsed laser producing near infrared radiant energy); and emitted light and the detected light are non-coaxial with one another (see fig. 5, col. 6, lines 10-61).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura to utilize near infra-red, shield and a non-coaxial arrangement as suggested by Marchitto, to enhance optical imaging of an anatomical structure and enhancing

vascular contrast for specific tissues of interest such as blood vessels, while providing non-invasive and relatively low cost imaging (see col. 3, lines 4-25, col. 1, lines 48-59).

Lafreniere, in the same field of endeavor, teaches preventing using a shield light scattered in a shallow portion of the body from reaching the detecting unit (see fig. 1, 2, 5, col. 8, lines 15-45; camera 11 and platform 3 provides an optical bench for the camera and platform and the platform is the object plane for that optical system. Between that object plane and the camera lens 41 is a lamp 42 that illuminates the object plane and may be a high intensity neon tube formed in a ring that fits coaxially within cylindrical container 12 as shown. Between lamp 42 and lens 41 is a reflector 43 that directs light from the lamp to the object plane and also forms an aperture at its inner edge 44 in the optical system that blocks any light from the lamp from entering directly into the lens 41. Also, the inside face 3b of the platform 3 may be slightly frosted so that it does not directly reflect an image of the lamp 42 into the lens 41).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Miura with Marchitto to utilize a shield as suggested by Lafreniere, to increase quality and performance of the imaging process by ensuring that only the targeted objects are imaged by the sensor/camera instead of any other objects such as the light source or any other external/ambient light sources (see col. 8, lines 15-45).

Regarding **claim 72**, Miura teaches wherein the part of body is a finger or a hand (Miura: figure 5, numeral 20).

Regarding **claim 73**, Miura teaches wherein the biometric pattern is a pattern of blood vessels (Miura: paragraph [0033]).

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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